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(54) Method of computerised input of Chinese words in keyboards

(57) The invention relates to a method of computerized input of Chinese words to keyboards with provisions of Chinese phonetic symbols and radicals. The method incorporates inputs of phonetic symbols as well as simplified radical signs of any Chinese character word into a computer keyboard for output of all information relevant to the word in question. In addition to the standard gwoyuu phonetic marking system any and all other phonetic marking systems meant to help pronunciation of Chinese words are acceptable for use as inputs to the computer. The computer is adapted for operation with the subject matter through conversion.

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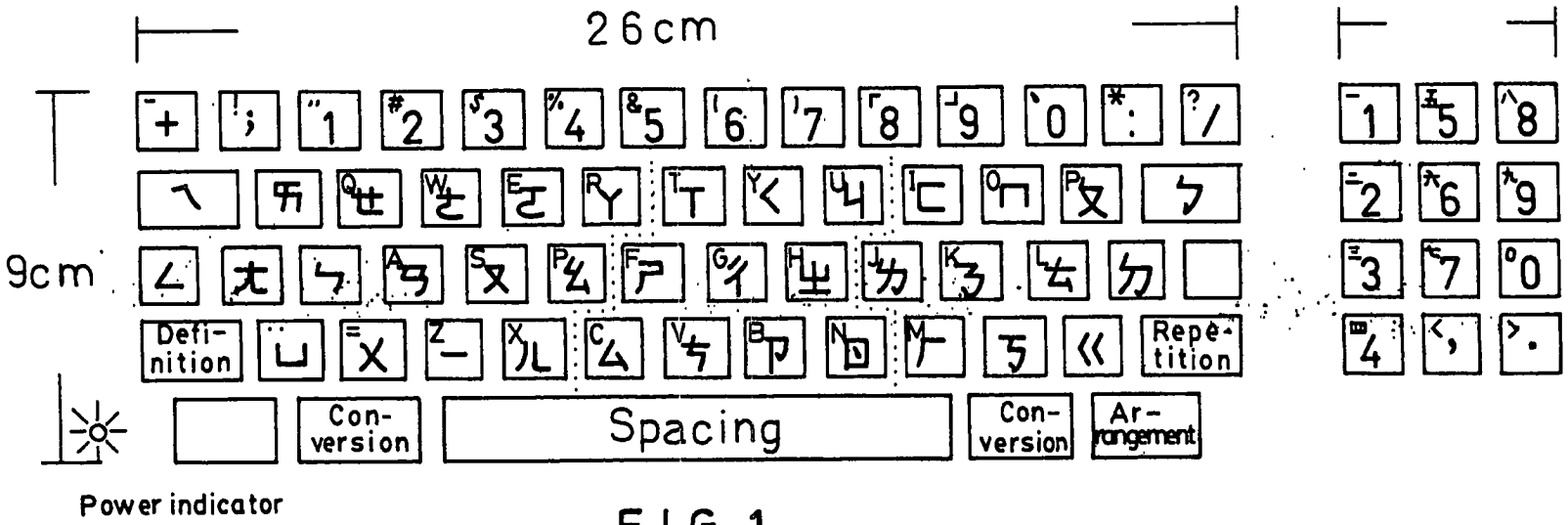
26cm
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version
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Power indicator

FIG.1

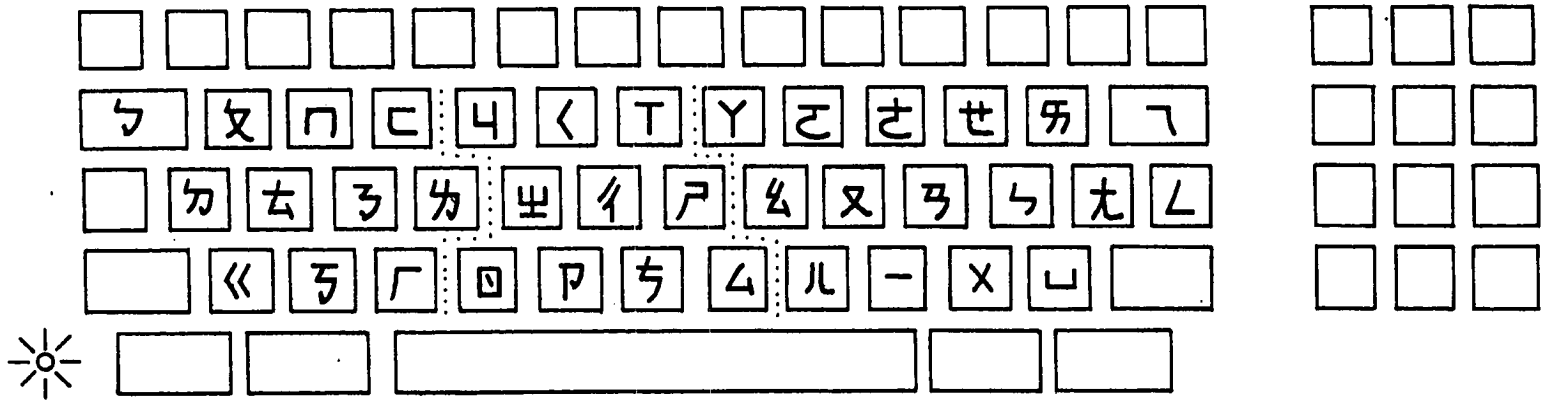

FIG.2

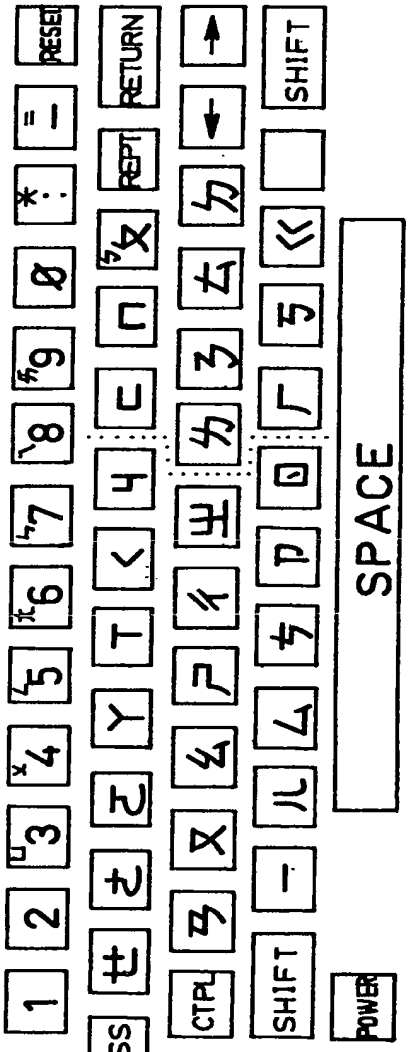

FIG.3

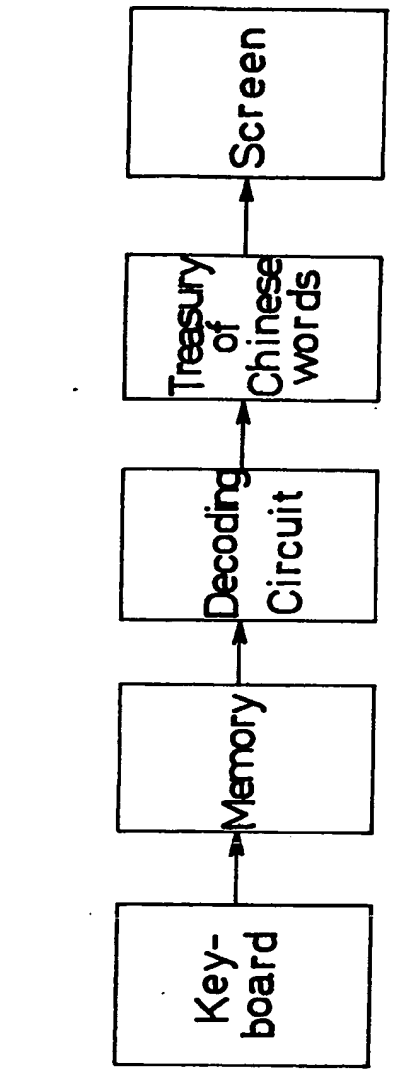

FIG.5

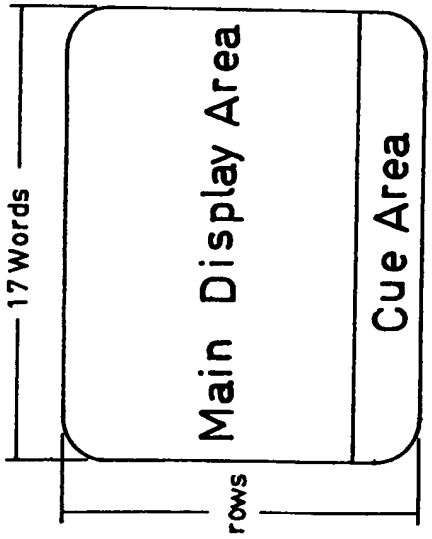

FIG.4

SPECIFICATION

Method of computerised input of chinese words to keyboards with provisions of chinese phonetic symbols and radicals

Ours is a world in which the Chinese language, whether for reading or spoken, is a most widely used language with the largest speaking populations, in an age when computer reaches everywhere for application in almost every kind of information, it is believed that a method of computerised input of Chinese words featured with ease to learn, convenience for use, that which will assist in a handy but comprehensive study of the Chinese language, the literature Chinese in particular, such as what the present invention has to offer, will be bound to be highly appreciated by all interested parties.

The Chinese as a spoken language differs distinctively from other languages characterised by spelling or combination of syllables, the pronunciation of a Chinese word consists essentially of an initial, a final, both of them as sound base, and a tone grouped together, like what is shown diagrammatically below:
Phonetic Symbol for a Chinese character:
Initials, Finals, and Tones–
Definitions given:
Initials: The beginning sound of a Chinese character, characteristically a mono-syllable.
Finals: Liguistically, the Chinese finals as defined in this text differ somewhat from the English vowels or those as employed by other languages using alphabetic letters: Chinese finals carry a wider reach of sounds whereas vowels cover but relatively simpler phonemic elements such as a, e, i, o, u, etc. Finals include the nasal pronunciational endings such as /n/ and /ŋ/ , which are bound finals. Tones: The tone, or tonality, is recognised as one of the most remarkable features characterising the Chinese language, a given particular syllable bearing different tones will entertain as many meanings, actually most Chinese characters can have four different tones plus a neutral tone that should be pronounced accordingly respectively when a speaker intends to make known as to what he intends to say or what he means.

A Chinese character is composed of an initial sound and a final sound, as is usually the case, but sometimes for some words the initial sound doesn't exist, still for some other words there exists a middle sound which pronounced for recognition or identification, a Chinese word consists therefore of at least two phonetic symbols and at most four phonetic symbols.

Many systems exist to help interprete the Chinese pronunciation symbols, there are, for instance, MPS: Mandarin Phonetic Symbol, Yale System, and G R: Gwoyuu Romatzyh, Romanization system, among others, a conversion table for some of these systems is given for reference.

Table 1: Comparative Table of Mandarin Phonetic symbols and IPA

Initials		Finals		Tones	
ㄅ	p	ㄧ	i (ɿ,ʅ)	( )	˥
ㄆ	p'	ㄚ	a	ˊ	˧
ㄇ	m	ㄛ	ɔ	ˇ	˨˩˦
ㄈ	f	ㄜ	ɣ	ˋ	˩
ㄉ	t	ㄝ	E	·	
ㄊ	t'	ㄞ	ai		
ㄋ	n	ㄟ	ei		
ㄌ	l	ㄨ	u	:	
ㄍ	k	ㄠ	ou		
ㄎ	k'	ㄢ	an		
ㄏ	x	ㄣ	ən		
ㄐ	tɕ	ㄤ	aŋ		
ㄑ	tɕ'	ㄦ	ə		
ㄒ	ɕ	ㄧ	i		
ㄓ	tʂ	ㄨ	u		
ㄔ	tʂ'	ㄩ	y		
ㄕ	ʂ				
ㄖ	ʐ				
ㄗ	ts				
ㄘ	ts'				
ㄙ	s				

Comparative Table of Phonetic Symbols

I Initials			II Finals		
MPS	YALE	GR	MPS	YALE	GR
ㄅ	b	b	ㄚ	a	a
ㄆ	p	p	ㄛ	-wo	o
ㄇ	m	m	ㄜ	e	e
ㄈ	f	f	ㄝ	e	e
ㄉ	d	d	ㄞ	ai	ai
ㄊ	t	t	ㄟ	ei	ei
ㄋ	n	n	ㄠ	au	au
ㄌ	l	l	ㄡ	ou	ou
ㄍ	g	g	ㄢ	an	an
ㄎ	k	k	ㄣ	en	en
ㄏ	h	h	ㄤ	ang	ang
ㄐ	j(i)	j(i)	ㄥ	eng	eng
ㄑ	ch(i)	ch(i)	ㄦ	er	el
ㄒ	sy(i)	sh(i)	ㄧ	yi(-i)	i
ㄓ	j(r)	j	ㄨ	wu(-u)	u
ㄔ	ch(r)	ch	ㄩ	yu(yw-)	iu
ㄕ	sh(r)	sh	(ㄭ)	(-r, -z)	(y)
ㄖ	r	r			
ㄗ	dz	tz			
ㄘ	ts(z)	ts			
ㄙ	s(z)	s			

Comparative Table of Phonetic Symbols

I Initials			II Finals		
MPS	YALE	GR	MPS	YALE	GR
ㄅ	b	b	ㄚ	a	a
ㄆ	p	p	ㄛ	-wo	o
ㄇ	m	m	ㄜ	e	e
ㄈ	f	f	ㄝ	e	e
ㄉ	d	d	ㄞ	ai	ai
ㄊ	t	t	ㄟ	ei	ei
ㄋ	n	n	ㄠ	au	au
ㄌ	l	l	ㄡ	ou	ou
ㄍ	g	g	ㄢ	an	an
ㄎ	k	k	ㄣ	en	en
ㄏ	h	h	ㄤ	ang	ang
ㄐ	j(i)	j(i)	ㄥ	eng	eng
ㄑ	ch(i)	ch(i)	ㄦ	er	el
ㄒ	sy(i)	sh(i)	ㄧ	yi(-i)	i
ㄓ	j(r)	j	ㄨ	wu(-u)	u
ㄔ	ch(r)	ch	ㄩ	yu(yw-)	iu
ㄕ	sh(r)	sh	(ㄭ)	(-r, -z)	(y)
ㄖ	r	r			
ㄗ	dz	tz			
ㄘ	ts(z)	ts			
ㄙ	s(z)	s			

The description of the invention will be based on the Gwoyuu phonetic symbol system, interpretation of the invention method with other phonetic-symbol systems is po possible and will be available by cross-reference to a conversion table such as that provided in Figure 1.

Another key feature characterising the Chinese words, in addition to a mono-syllable structure, lies in the radicals such that each word has a radical of its own, a Chinese radical is similar to an English prefix or suffix, according to a classification system adopted in Kang Shi Dictionaries, all the Chinese words are classified to belong to one out of 214 radicals each bearing a connotation, explicit or implicit, or an origination of a particular word, for example, words associated with water such as sweat 汗, tide 汐 pool 池, wave 波, river 河, all bear the radical water 水, as a result, on seeing a word having the radical of water 水, one can be sure that it bears a relation somehow with water, so it goes without saying that acquaintance with a Chinese radical will help us a lot in tracing into the meaning and background of a word bearing that radical.

Introduction of the method:

'Method of computerised input of Chinese words to keyboard with provisions of Chinese phonetic symbols and radicals' is a method to feed Chinese words as inputs to a computer for the purpose of checking up the word being fed in like an entry in a dictionary by virtue of the phonetical symbols as well as the simplified spelling sound of the radical of the word in question. We will account for the method to identify a Chinese word by means of syllable phonetic marking and unsimplified spelling sound of the radical before introducing the subject method in details.

Some examples of identification by syllabic phonetic marking in conjunction with unsimplified spelling sound of the radical:

Syllabic symbol			spelling sound of the unsimplified radical	
是 identify by	ㄎ	2	plus	T-S/
老 identify by	ㄅㄟ	1	plus	T-S/
智 identify by	ㄓ	4	plus	ㄅ 4
明 identify by	ㄇㄧㄥ	2	plus	ㄅ 4

So it is obvious that to identify by syllabic symbol plus unsimplified radical spelling, a Chinese word calls for at least four phonetic symbols, some words may even require as many as eight phonetic symbols for identification. To increase the input speed of Chinese words subject to identification, the inventor has found with success that the radical spelling can be simplified direct to consist of but two symbols through analytical study of which the justifications will be given later in the text, to the effect that the symbols require to identify a word can be reduced to six instead of eight, in addition to the save of an input prodecure involving a push of a key to notify the computer of all the ident symbols accomplished of input in preparation for decoding and identification to yield the correct result identical to the explanations following a word-list entry in a dictionary. The simplified entry input according to the invention takes the form below:

syllabic symbol		simplified radical spelling
	plus	
initial and final	tone	

Each syllabic symbol will close on a tone key that can be a digit key of 1 to 5 such that the computer will be in a position to identify, by means of such a tone key, that what is currently being fed in is a syllabic symbol and what will be fed in on the next two keys are the code for the simplified radical spelling. In other words, while performing an entry input for identification by the Chinese Computer, all that has to be done is to effect a push of the syllabic symbol key comprising digital 1 through 5 to be followed by a push of two additional keys, whereupon the computer will automatically process all the input symbols for decoding to yield the correct results wanted by the operator.

The rule for the simplified radical spelling:

1. where but one phonetic symbol exists for both the initial and the final sounds of the radical pertaining to a given word, the tone will be retained to make for two symbols altogether.

2. where two phonetic symbols exist for both the initial and the final sounds of the radical pertaining to a given word, the tone symbol will be elided to make for two symbols altogether.

3. where three phonetic symbols exist for both the initial and the final sounds of the radical pertaining to a given word, the midway sound and the tone will both be elided to make for two symbols altogether.

Examples

	radical	unabridged pronunciation symbols		input symbol	
1	止	ㄓ	3	ㄓ	3
2	山	ㄕㄢ	1	ㄕㄢ	
3	角	ㄐㄧㄠˇ	3	ㄐㄠˇ	

The original pronunciation symbols and the actual input symbols for the 214 radicals as defined in the Kang Shi Dictionary are tabulated in Table II, but some intentional deviation of pronunciation and definitions for a few radical input symbols were made, as illustrated in Table III, with a view to avoid ambiguity, details to be given later in the text.

Ambiguity is inevitable, as anticipated of, in the effort to express radicals by means of phonetic signs, for instance, 氵 and 忄 are two different radicals bearing like pronunciations; and moreover, after the simplification process, ambiguity emerges where it doesn't exist before, for instance, 疋 and 皮 , would the simplification scheme work at all?

It is to be noted that the present method is meant to facilitate first of all computerised identification of Chinese words, with emphasis laid on ease of operation and promptness in the rendering of results in answer to an entry input, so it unavoidably permits possible ambiguity or repetitions where one to one identification is unlikely, and in as much as such ambiguity or repetitions are not so much a result of radical simplifications.

It would seem appropriate to look further into the ambiguity issue in relation to the radical simplification scheme with reference to the Lexical Code published by Culture Publishing Co., on Sept 1st, 1980, we started by identifying all the words having radicals bearing the same simplified symbols according to the invention scheme and found them to be substantially limited in number, in other words, ambiguity will far less have a chance to happen for the input of words having like radicals, as would be justified by the instance of radicals 皮 and , both sharing the same simplified entry symbol of , but Chinese words belonging to either radical have not been found to share exactly an identical pronunciation, so for those words no ambiguity will occur when subject to input for identification with a Chinese computer using the subject method. Still, the minimise ambiguity that might show up as a result of the radical simplification scheme certain adjustments were make for certain radical simplifications, of which some examples were cited in Table III;

Table III Adjustment list of simplified radical spelling signs

Radical	Original spelling	Unadjusted simplified spelling signs	Adjusted spelling	Reasons
赤	ㄇ一丶	ㄇ一	ㄙ 1	Sound borrowed from Silk
木	ㄇㄨ丶	ㄇㄨ	ㄇ 1	By definition
目	ㄇㄨ丶	ㄇㄨ	ㄇ 2	By definition
石	ㄕˊ	ㄕ 2	ㄕ 5	By definition
儿	ㄖㄣˊ	ㄖㄣ	ㄦ 1	By definition
衣	丶一	一1	一 2	By definition
广	一ㄣˇ	一ㄣ	ㄣ 1	Sound borrowed from

Cross-checking after such adjustments revealed that out of a total of some 12,000 words as entered int the Lexical Code, only about 100 words, about 1% thereof, will suffer ambiguity because of the radical simplification scheme, but understandably, that will by no means incur too much a nuisance, because advantages by radical simplification will by far outdo the probable trouble of repeated runnings.

A good number of approaches exist for the input of entries to a Chinese Computer, of them the easiest one is the so-called Syllabic spelling method, in Taiwan, the Republic of China, even an elementary school pupil can use it with ease, so it would doubtless be easily accepted by foreigners learning to speak or use the Chinese language, as well, the only shortcoming therewith is frequent repetition of words bearing like pronunciations, and this major drawback has been substantially improved according to the provision of the subject invention, what follows is a comparision of the subject method in terms of the numer of input keys with repeated entries:

(A) Improvements of repeated words or entries

As mentioned in the foregoing paragraph, ambiguity due to the subject radical simplification scheme will occur in but one case out of 100, so to simplify statistic words the overall maximum repetition due to ambiguity with the subject method will have to include ambiguity involved in inputs according to syllabic

pronunciation plus radical setting in addition to the indigenous 1% ambiguity mentioned hereinbefore. Initial investigation was made on a total of 933 words bearing initials of ㄋ and as entered in the Lexical Code and it was found that ambiguity due to the method of phonetic pronunciation in conjunction with radicals was far less than the case with the approach of phonetic pronunciation alone, the result is tabulated in Table IV, in which the figure of repetition corresponds to all the different Chinese words answerable to a particular input code, the larger the figure, the longer the time will go before the unique desired word together with all informations associated therewith will appear on the display scope.

Table IV *A Statistics of the Chinese Words pronounced with pronunciation beginning on initial and*

amiguity rate	non-ambiguity	2 to 3 words	4 to 6 words
employing phonetic marking alone	1.5% (14 words)	6.3% (59 words)	15.8% (147 words)
employing phonetic marking together with radical identification	94.6% (883 words)	4.3% (40 words)	1.1% (10 words)

Table IV - 1 amiguity rate	7 to 9 words	more than 10 words
employing phonetic marking alone	14.2% (132 words)	62.3% (581 words)
employing phonetic marking together with radical identification	0	0
	0	0

*Efforts have been made to reduce variants of a same word, like vulgar form, cursory form, antecedent form, to a standardized one with a view to minimise ambiguity, the cause for repitition.

From the table above it is evident that chances of ambiguity for the method employing phonetic marking together with radical identification are far less than the method to employ phonetic marking alone, the subject method incurs an additional likelihood of appearances of a word bearing the identification traits as the one intended for identification to a rate of but 1% as compared with the method employing phonetic marking together with radical identification.

We have made a comprehensive check on all some twelve thousand words entered in the Dictionary and found that with the exception of the group comprising seven words subject to involvement with ambiguity or repition, an over-whelming 93% of them treated by the subject Method are absolutely free from ambiguity problems, 5.5% subject to ambiguity of 2 to 3 words, 1.3% subject to an ambiguity of 4 to 6 words.

A Comparision of the number of keys required for the identification of a word

1. Phonetic marking method: pronunciational marking of 2–4 keys the word + selection code + ending key, requiring 4 to 8 1–3 keys 1 key
keys altogether

2. The subject Method: General cases (93%) 4–6 keys cases involving ambiguity, and therefore, possible repetition (7%) 5–7 keys

A review of the statistics given in the foregoing will render it obvious that the Subject Method as opposed to the system of employing phonetic marking alone, that which is typically employed in some Chinese Computers known todate, will achieve in a substantial cut in the rate of ambiguity, and therefore the trouble of possible repeated running for a particular word, without an increase in the number of input keys, the advantages and improvements attained therewith are truly remarkable ones.

Major commercialised approaches for inputs to Chinese Computers include Wang Laboratories 'Triangle Codes' and IBM's Chinese Radical input Method, in the Triangle Code method, provisions are made for cornering and form-taking, the former is easier, the latter, more complicated and provided with 7 and 8 rules respectively, for reference please refer to Reference Guide for digitised Triangle Codes, published by System Publications, 1977, they are subject to a an ambiguity rate of up to 3%, prerequisite for use is recital of 99 sets totalling 300 basic marks and codes from which a given code for a particular Chinese word will be formed, usually in six digits, such a relative complexity involving much ado is a major disadvantage therefor.

IBM's Chinese Radical Input Method involves an analysis of the fundamental classification of the handstroke and script which altogether constitute a Chinese charactery equivalent to an English word, to be catergorised into four categories covering 24 master ideograms to be evolved into 47 sub-ideograms for

combination to be construed as a particular Chinese word-charactery, for inputs, sub-ideograms together with the relevant master ideograms will share a common key to effect that the idea is to group a Chinese word by a combination of some of the 24 master ideograms, almost rivalling the guidelines for inputs of entries of English words, still, in analysing a Chinese word one has to observe four action rules, failures or ambiguity can happen much too often, to a frequency of 5% and 1% respectively.

A common trait for both of the approaches mentioned above is to divide all the Chinese words into groups, either into 300 basic marks or into 24 master ideograms comprising 47 secondary sub-ideograms, alike in principle to impair the integrity of a Chinese charactery although they may differ in niceties in the decomposing procedure. Such provisions in which artifically imposed rule plays a vital role are easy cause for contention besides all the troubles involved in reciting before use. Different people will view the principles differently, take the ideogram decomposing rule, for example, 1: Generality
principle: [illegible] decomposed into 艹 人 一 口; 2. Conciseness
principle: [illegible] decomposed into 口 卜 尸 木; 3. Sectionning
principle: [illegible] decomposed into 金 一 皿 一; 4. Abbreviation
principle: [illegible] decomposed into 忄 艹 皿 心; these are excerpts from the Gardeners' Remarks the 26th issue., who can be sure of the assertion that a reader will appreciate the rule exactly as does the person who advocated such a rule. Would the same results be obtained for different people using the same principle for identification: not to mention the damage done to the integrity of a Chinese charactery that is so characteristically Chinese.

In comparison with those approaches for inputs of Chinese words as entries to a Chinese Computer, the subject method's advantages are obvious, the subject method in no way multilates the characteristic traits of the Chinese charactery and provides for no rules or prerequisites whatever for application, and most notably, the input keys required totals but 4 to 6 keys, in addition, for a foreigner wishing to study the Chinese language, operation or practice according to the subject method aptly coincides with the course of study, who will become all the more familiar with the correct pronunciation of a Chinese word and have a better understanding of the contents and backgrounds of a Chinese word at the same time.

The keyboard for use with the subject method of computerised input of Chinese words to keyboards with provisions of Chinese phonetic symbols and radicals is as shown in Figure 1, complete with symbol keys, function keys and lower indicators. The symbol key covers Chinese phonetic signs, digits, English alphabets, specific marks and punctuation marks: the main function keys include provisions for spacing, repetition, transfers, definitions and arrangements, a description of the keys is given as follows:

(1) Symbol key

1. Key of Chinese phonetic signs: including some 37 phonetic signs altogether, to accommodate use for representation of the pronunciation and the radical setting of an input Chinese word, lining up leftwards, contrary to the English practice, going down in the manner as illustrated in Figure 1, but it is available to run rightwardly in the execution as shown in Figure 2 in countries where it is customary to read in the rightgoing direction, (The tonality of a word is to be entered by keys representing the same but with numeral indications of 1 through 5)

2. Key for other marks or signs or figures:

(a) Digit keys provided on the upper margin and both sides of the keyboard, 20 of them altogether:

1 2 3 4 5 6 7 8 9 0

一 二 三 四 五 六 七 八 九 〇

(b) Roman alphabets and other punctuation marks, 50 of them altogether:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

+ - ! ; [illegible] ( ) : = , [illegible] ? / [ ] 、 [illegible] ° < [illegible]

(II) Function Key:

1. Space Key:

(a) To come to service when a spacing is required, in moments when it is desired to leave a space on the display screen before the next impression shows up, just push the key accordingly.

(b) To serve as an option key for the most frequently used word in case of input of like digits, for which an example will be given in the ongoing text.

(c) To serve an inquiry purpose in cases where the pronunciation of a particular word is known but its radical unknown, the key will then have to be pushed immediately following the keying of that pronunciation, whereupon all words bearing the same pronunciation will appear on the screen, lining up in the order of radical sequences for ready identification, one would then select the code for the word desired for keying together with the present key.

2. Repetition key:

The key, if pressed in succession right after the appearance of a figure just being keyed on, will make the

same figure reappear once again.

For instance, once the word 詞 has been keyed for and just appeared on the screen, depression of the repetition key will cause it to reprint right behind it, that is, the screen will display 詞 詞 .

The repetition key will have like effects on other marks whatever.

3. Transfer key:

Corresponding to the SHIFT key on an English Computer, depression of this key together with another key will cause input of a mark on the left upper corner of the latter key, like what is shown in Figure 1.

4. Definition key:

To designate a certain key representing a certain word series.

(a) Establishment of the definition: Fistly depress the Definition key, then depress the key to be defined, whereupon the latter key together with a colon mark (:) will appear in the indication column of the screen, to follow that feed the word series meant to be represented by the input logic, and the word series will appear behind the colon mark. Upon completion of the word series intended for statement, depress a definition key once again and the Definition running will be terminated accordingly.

(b) Output of Definition: On completing the definition running, just depress the definition key, then the certain key for which definition has veen run, and finally the spacing key, and the word series meant for reproduction will appear.

5. Setting key:

Depression of this key followed by depression of key will yield a crosswise printing on the computer display screen, followed by depression of key will yield a vertical printing instead.

6. Key for other functions:

The blank keys as provided on Figure 1 will be reserved as function keys serving language progranning for other computer applications.

A few examples will be given below to illustrate certain word identification applications:

(a) Common practices:

In most applications, about 93% of all practical applications, depression of the pronunciation keys and the corresponding radical simplified spelling keys will suffice to have a Chinese word identified on the screen, for instance:

Word	pronuciation		simplified radical	pronunciation
集	ㄐ	2	TS	
詞	ㄘ	2	ㄧㄣ	
悲	ㄅㄟ	1	TS	
智	ㄓ	4	ㄖ	4

(b) Input of words bearing like pronunciations:

To avoid stipulating too many artificial rules to follow, the identification of a few words differing in meaning and handwriting but bearing like pronunciation, amounting to roughly 7% of all Chinese words available for the memory system of a Chinese computer, will be prosecuted in a manner that is best demonstrated by an example given below.

派 ㄆㄞ 4 ㄆㄟ

Input of the word 派 with the computer will forthwith cause the computer to release a sound "doo" reminding the operator of the printing of two words 派 川 , either can be the word in want, 派 , with more frequent applications, will appear ahead, now just give a depression of the spacing key, the easiest to depression, like shown in Figure 1, and the word will stand chosen, it will also be acceptable to depression digit key 1.

界 ㄐㄧㄝ 4 ㄊㄧㄢ

Accompanying the sound of "doo" there will appear on the screen two words 界 刊 , the lesser used one 刊 , will appear in the second row, if that is the word intended, then the operator will have to depress key 2 to retain the same.

Note: Words that could cause ambiguity because of likeness in pronunciation and therefore the sharing of a like identification code number are never in excess of 9 figures, so upon completion of printing of all the figures defining such a word the computer will have exactly the word in want shown on the screen before the operator.

3. Pronunciation signs

ㄅ : ㄅ ,

4. Figures and marks other pronunciation signs

Depression of corresponding keys will result in a prompt reproduction on the screen, as is the case with common English computers.

To test the feasibility of the subject Method for application in the industries, the inventor has attempted with success to remodel the Apple II Computer, it has been successfully converted to a Chinese Computer using the subject method of computerised input of Chinese words to keyboards with provisions of Chinese phonetic symbols and radicals, the remodelled computer is as shown in Figure 3, screen layout as shown in Figure 4, whereas the Operation Block Diagram is as shown in Figure 5. In the Operation Block Diagram as shown in Figure 6 step (1) covers the procedure in which the input pronunciation code is converted through the keyboard into Code ASC II for deposit in the Memory by way of 6502 CPU, step (2), (3) provide for comprehensive input of pronunciation as well as radical symbol codes of a word intended for identification for decoding of whole set of ASC II in the Memory by CPU so that the charactery form of the Chinese word in want may be retrieved from the Library, step (4) provides to have the correct Chinese word in want in its true form delivered for presentation on the screen display for review, together with all informations associated with that word.

CLAIMS

1. Method of computerised input of Chinese words to keyboards with provisions of Chinese phonetic symbols and radicals, incorporating inputs of the phonetic symbols as well as simplified radical signs of any Chinese charactery word into a computer keyboard for output of all informations relevant to the word in question, characterised in that in addition to the standard Gwoyuu phonetic marking system, any and all other phonetic marking systems meant to help pronunciation of Chinese words are acceptable for use as inputs to a Computer adapted for operation with the subject method through conversion.

2. A method computerised input of Chinese words to keyboards with provisions of Chinese phonetic symbols and simplified radical signs according to claim 1, characterised in that said keyboard consists of:

(I) Symbol key

(1) Key of Chinese Phonetic signs: including some 37 phonetic signs altogether, serving to represent the pronunciation together with the simplified pronunciation of the radical of a Chinese word.

(2) Key for other marks or signs or figures:

(a) Digit keys provided on the upper margin and both sides of the keyboard, 20 of them altogether.

1 2 3 4 5 6 7 8 9 0

一 二 三 四 五 六 七 八 九 〇

(2) Roman alphabets and other punctuation marks, 50 of them altogether:

A B C D E F G H I J K L M N O P Q

R S T U V W X Y Z ! " / $ & ' ( ) ? @ -

= ; . , : # ㄏ ㄴ 、✡ ° < > ^

(II) Function Key

(1) Space key:

1. To come to service when a spacing is required, in moments when it is desired to leave a space on the display screen before the next impression shows up, just push the key accordingly.

2. To serve as an option key for the most frequently used word in case of input of like digits or signs.

3. To serve an inquiry in cases where the pronunciation of a particular word is known but its radical is unknown, the key will then have to be pushed immediately following the keying of that pronunciation, whereupon all words bearing the same pronunciation will appear on the screen, lining up in the order of radical sequences for ready identification, one would then select the code for the word desired for keying together with the present key.

(2) Repetition key:

The key, if depressed in succession right after the appearance of a figure just being keyed on, will make the same figure reappear once again.

(3) Transfer key:

Corresponding to the SHIFT key on an English Computer, depression of this key together with another key will cause input of a mark on the left upper corner of the latter key,

(4) Definition key: To designate a certain key representing a certain word series.

1. Establishment of a definition: Firstly depress the key to be defined therewith, whereupon the latter key

together with a colon mark (:) will appear in the indication column of the screen, to follow that feed the word series meant to be represented by the input logic, and the word series will appear behind said colon mark. Upon completion of the word series intended for statement, depress a definition key once again and the definition running will be terminated accordingly.

2. Out put of definition: On completing the definition running just depress the definition key, then the certain key for which definition shall have just been run, and finally the spacing key, and the word series meant for reproduction will appear accordingly.

(5) Setting key:

Depression of this key followed by depression of key will yield a crosswise printing on the computer display screen, followed by depression of key will yield a vertical printing instead.

(6) Key for other functions:

The blank keys as provided on Figure 1 will be reserved as function keys serving language programming for other computer applications.

(7)Setting switch:

To determine whether the output should be in vertical setting or else horizontal setting.

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